

## Review

# Flooded economy of Pakistan

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**The ability to achieve sustainable recovery after a disastrous calamity remains an uphill task for an economy like Pakistan, owing to inefficiencies of the systems and the ineffectiveness of the policies in such economies. The floods in 2010 to 2011 have imposed a substantial adverse impact on the economy. As the effect on various macroeconomic parameters essentially depend on the policy that the government adopts, it would be difficult at this juncture to provide an absolute quantitative assessment of the impact of floods on the economy. However, the government is faced with a set of macroeconomic tradeoffs and has to choose an optimal policy that will mitigate the impact of floods in the shortest period of time, while keeping alive the long-run objectives of sustainable economic stability and growth. Nevertheless, progress in the recovery of the system is stained by prevailing security and economic conditions. While rising flood-related expenditures with continued power sector subsidies and security issues are one aspect of the problem, a narrow tax base and a declining tax to GDP ratio are bigger issues in magnifying the fiscal challenges. This research is an effort to understand and analyze the economic and political impacts of the disastrous floods in July 2010 to 2011.**

**Key words:** Floods, economy, Pakistan, inflation.

## INTRODUCTION

Pakistan's economy has been struggling hard to regain steadiness and stability since enduring the internal and external shocks in 2007 to 2008. The colossal floods that set in motion to smack Pakistan in the last half of July 2010 have caused problems to the country's economic and political aspirations deeper. The extra ordinary negative economic fallout is expected to have brought about substantial unemployment issues, double digit inflation and societal instability. The massive lost of foodstuff and live-stock will further push the inflation to even higher levels. Costs of living (in terms of daily kitchen item prices) have been observed accelerating everyday. The floods are thrusting up the transportation costs, thereby contributing to the amplification of inflation. It must also be considered that restoration and rebuilding activities can also guide to an unusual increase in the cost of construction resources. The floods have brought about miseries to around 21 million people, deepened the energy crisis and have also contributed to the

apprehension of communal disorder. The catastrophic event has left around 6 million people without home and about 11 million in critical requirement of compassionate support. As per the UN, the calamity has impinged upon the life of around 21 million people, with 1600 losing their lives and nearly 1.7 million houses smashed up or obliterated. One must mention at this juncture, the more grievous facet of the floods is not its urgent consequences but the aftershocks are deemed to be harsher than its instant dent (<http://www.un.org/apps/news/story.asp?News>).

Swaying away from the human losses, one of the most horrible disasters in Pakistan has threatened to disrupt the economy. The current crisis has more chances to aggravate the regional inequity, as areas which are already considered as economically down in the dumps have been affected most by the recent floods. The damages to revenue and commercial assets would create joblessness, and being without a job along with mounting price levels may append extra poverty in the expanse. The aim of the study was to provide awareness that, if strategic procedures would not be taken, the mounting poverty could not remain restricted only to the

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affected regions but would ultimately be transmitted to the municipal hubs. Therefore, price hike guided by the scarcity of foodstuff and displacement of individuals seeking employment will disturb and imbalance the whole economy.

## CAUSES OF FLOOD

The discussion on the causes of abnormal flood could go on to any length and numerous arguments could be forwarded like the recent overflow is blamed on extraordinary torrential rain. NASA has already published a map indicating an unusually intense monsoon rainfall in region attributed to La Niña (<http://www.earthobservatory.nasa.gov/Features/LaNina>). Flash flooding possibilities has been cautioned between July and September 2010 in the northern regions of the state, and the area did receive much more than typical precipitation during the said period, leading to the flood wave development. Few of expulsion intensity documented can easily be compared to values captured during the flooding of the last two decades (<http://www.judithcurry.com/2010/09/20/pakistan-on-my-mind>). The National Disaster Management Authority (NDMA) has already provided estimation that 78 out of 124 districts (Khyber Pakhtunkhwa has 22, Punjab has 12, Sindh has 21, 9 districts in Balochistan, in addition to 7 apiece in Gilgit-Baltistan and Azad Kashmir) would get disturbed by the floods. The recent floods have caused miseries to around twenty million citizens who work around; over one tenth of the country's population with over 1600 reported deaths and nearly 3000 injured. About sixteen hundred thousand homes have been destroyed, and standing crops over thousands of acres of agricultural lands have been damaged, with major soil erosion happening in most areas (<http://www.ndma.gov.pk>). The calamity has, apart from guiding to damages in terms of human fatalities and mass disarticulation, smashed the economy's chief harvest over a projected area around 1,380,000 acres constituting 31 percent of economy's cultivating land. Country's worst ever flooding disaster, in the history of 64 years, has messed up around 21% region of the country almost equal to the dimension of England (<http://www.ipripak.org/factfiles/ff126.pdf>).

Federal Flood Commission (FFC) was created in 1977 in reaction to flooding situation of the Indus River during 1973 and 1976, which operates under the Ministry of Water and Power. The commission is assigned with implementing flood monitoring ventures and thereby safeguarding lives and possessions of citizens from the adversities of floods. Right from its inception, the Commission has received significant funding but like most of the public sector organizations in Pakistan, traces of corruption can be seen or felt in the Federal Flood Commission as well. Numerous documents can be found

showing several projects were kicked off, funded and accomplished, but the recent data clearly reflect that the volume of work is too little and too inefficient. Figure 1 is a map showing the flood affected areas of Pakistan.

Even prior to the floods, there were increasing concerns about the health of the Pakistan economy, although Pakistan's external economic position has improved slightly, as the external current account shortfall declined to 2% of gross domestic product in 2009 to 2010, and the foreign exchange funds hovers around \$13 billion at 30th June 2010. As per the government claims, economic activity started showing some signs of acceleration, with real GDP growing by 4.1% in 2009 to 2010, but overall, the fiscal performance has gradually deteriorated and is posing a threat to economic stability. Pakistan's credit rating has slim chances to improve because of the negative fiscal effects created by the destructive floods however, the economy's present credit ranking aptly incarcerate the uncertainties of the expected fiscal meltdown. The 2009 to 2010 fiscal deficit target, which was revised upwards to 5.1% of GDP only in March, was missed by a wide margin by 1.2% of GDP, owing to a substantial overrun in electricity subsidies and a shortfall in tax revenues. As it generally happens in developing economies, lack in structural reforms cause delays in mobilizing budget support from the donors and cause the Governments to resort to borrowing from the central bank to finance its substantially higher fiscal deficit. Such an expansionary fiscal policy and monetization of government debt adds to inflationary pressures and the year-on-year inflation hovers on a higher side generally in double digit percentages (<http://www.siteresources.worldbank.org>)

## EFFECTS OF FLOOD

The flood has brought devastating impacts on different sectors of the economy, mainly agriculture and its related industries. Without an inch of qualm to the severity of harm inflicted upon by the flooding on the current socio-economic activity and government spending, but the serious and long lasting impacts would stand by the destructions caused to resources and assets. The closing down of one significant gas field and six power generation plants compounds the melancholy by contributing further 1,500 MW to the already 4,500 MW of electricity deficit. Numerous means of transportations and communications including bridges, roads and railway tracks swept away. The economic shock is immense, reflecting that direct damage was majorly spread between housing, roads, and agriculture. Estimates provided by Pepco indicate floods to have caused damages in the vicinity of about 5 billion rupees (\$47 million) to the company. Few of the grid stations completely swept away resultantly approximated 1000 rural community in the destructive region of lower Punjab

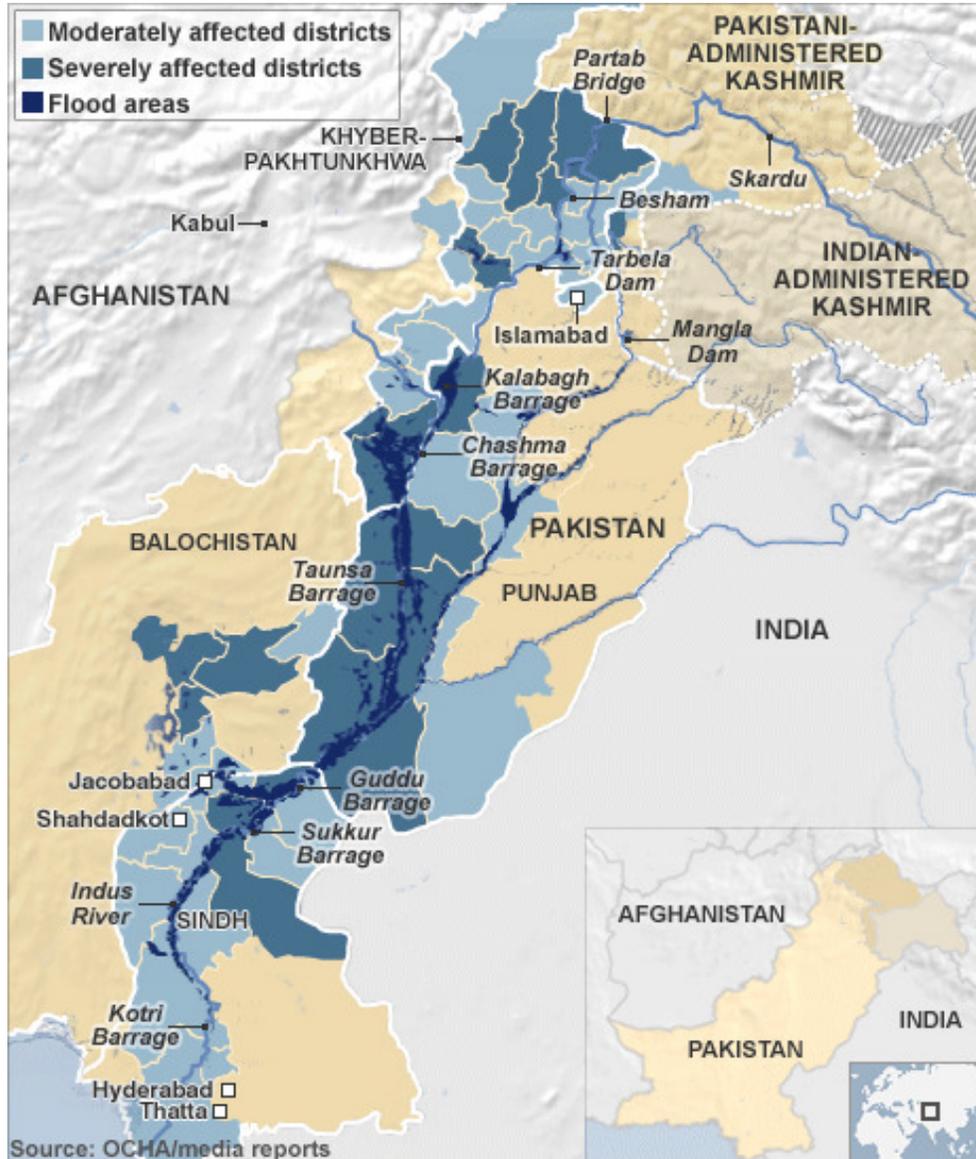


Figure 1. Flood affected areas of Pakistan. Source: (www.ochaonline.un.org/MediaCentre).

devoid of electricity (<http://www.pepco.gov.pk/>). The planting in place of new electric accessories (feeders, poles and wires) also require serious attention. The fatalities from the flood is not limited to the public sector but has also engulfed the resources and properties engaged in non public sector which are beyond any calculations and estimations.

**DAMAGES CAUSED BY THE FLOOD**

The calamity of the recent flood could be judged both in terms of direct and indirect damages. Direct damage could be defined as the financial assessment of the destroyed assets whether entirely or partially, such as

societal, physical and economic infrastructure, typically calculated at the book value, or the depreciated value. Whereas indirect damages are income losses based on change in the course of delivering goods and services. It also include additional economic flows as well as enlarged expenditures, truncated production and weakened revenue, which crop up from the direct damage to production competency and economic and social infrastructure. Wherever possible, damages and losses have been further split across public and private sectors to assist in macroeconomic analysis and to guide the development of public sector recovery strategies that optimally also take into account the recovery of private sector assets and services. On the whole, damages from the current flood is estimated at Rs 855 billion (5.8% of

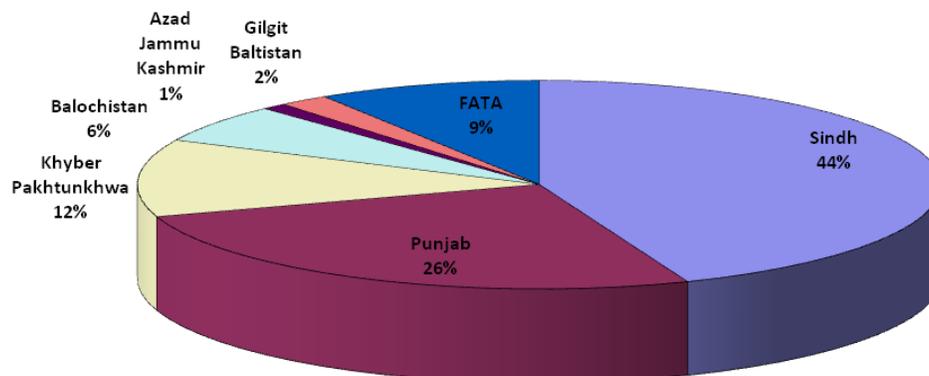


Figure 2. Percentage damage by province/area.

2009 to 2010 GDP), with agriculture sector having its share in the range of Rs 429 billion and the value of damage to the housing sector is estimated to be around one-third of that in agriculture. With 44% of total (direct and indirect) damages, Sindh was the worst affected by floods, followed by Punjab (26%) and Khyber-Pakhtunkhwa (12%) (Figure 2). The federal government also has a sizeable share (9%) in total damages, although most of them are contributed by indirect losses of federally owned commercial banks and financial institutions

([http://www.siteresources.worldbank.org/.../Ch4\\_Pakistan\\_FloodsDNA\\_December2010.pdf](http://www.siteresources.worldbank.org/.../Ch4_Pakistan_FloodsDNA_December2010.pdf)).

The recent flood has affected the agriculture sector the most, which constitutes around 50% of the estimated cost of overall damages. As had been said earlier, the overall damages and losses to the agriculture sector are estimated to be around Rs 429 billion, but more importantly, most of which are attributable to cropped agriculture. Since all of the crops affected by floods were all set for harvest, most of these damages can be taken as loss in sub-sectoral value added. This has resulted in decline in the value added in crop agriculture by around 10% which was targeted to increase by 3.5% in 2010 to 11 from the level of 2009 to 10, with major crops showing a decline of about 7% and minor crops of 20%.

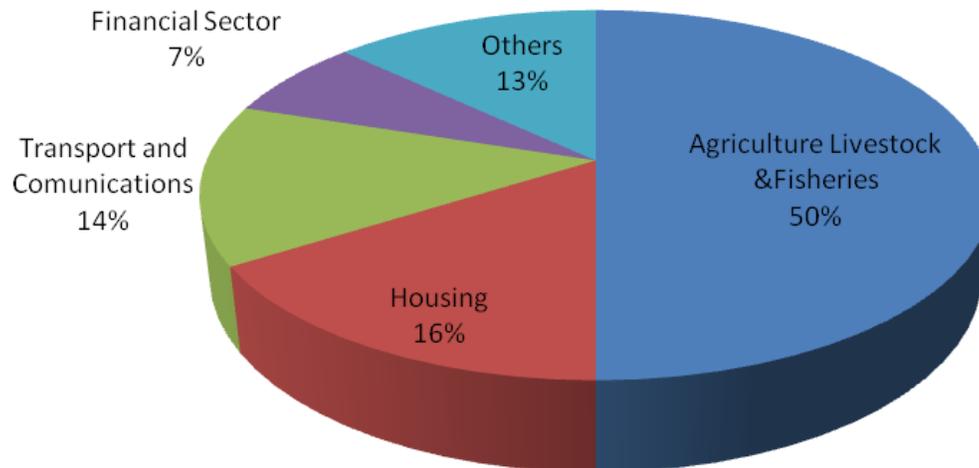
The floods have severely damage the wheat production which is one of the chief crops of Pakistan. Around 45,000 tonnes wheat in Punjab and nearly 81,000 in Khyber Pakhtunkhwa have totally been destroyed. Furthermore, some 545,000 tonnes of wheat expected to have been destroyed in Sindh, and taken as a whole, overall damage to crops in Baluchistan is about over a locale of 322,000 acres ([http://www.archive.org/stream/.../parliamentarypa209commgoog\\_djvu.txt](http://www.archive.org/stream/.../parliamentarypa209commgoog_djvu.txt)). Moreover, the annihilation of rice, cotton, vegetables, sugarcane and fish farms also has their charities in losses as well. Pakistan's foreign exchange reserves would severely be affected, since the major contributor to export sector of the economy has faced

damages in the form of crops of cotton, sugarcane, rice and maize. About 3/4 of Pakistan's twenty one billion dollar mark export for 2010 to 2011 is expected to have been contributed by textile and agriculture. Furthermore, the recent calamity has destroyed about 20% of the standing cotton produce (15 million bales) for the year, thereby depressingly affecting the large-scale cotton manufacturing and overseas sales (<http://www.jang.com.pk/thenews/aug2010-weekly/nos-15-08.../pol1.htm>).

## EFFECTS OF FLOOD ON AGRICULTURE

The agricultural damages are enormous and can go on to hit new limits as per the rational recent estimations, and a pessimistic break down of the losses would include lost cotton harvest over 0.7 million acres, 0.2 million acres of sugarcane and 0.2 million acres of rice crop. In addition, loss of over 0.6 million tonnes of stocked wheat, 0.3 million acres of animal food and the stored grain losses cannot be ignored. Other agricultural crops such as rice, sugarcane and mangoes were badly hit and it is required by the international community to participate whole heartedly in the rehabilitation and reconstruction processes, as well as for the reemergence of agricultural produce and growth in the future.

Floods in 2010 in Pakistan has seriously affected the livestock sector too which has suffered some heavy losses, and the overall direct and indirect losses in the sector are estimated to be Rs 48 billion (<http://www.reliefweb.int/>; Canton, 2009; Cerullo and Cerullo, 1998; Chandra et al., 2009; Daniels et al., 2006; David et al., 2002; Drabek and Thomas, 2010; Ebling, 1996; Hurwicz, 2000; Louise, 1988; Matthew, 2006; Mitome et al., 2001; Phillips, 2009; Rutherford, 1999; Sandra, 1995; William Jr, 2007) As such, despite the loss of large number animals, value-added in the sub-sector will decline only by 0.6% and the sub-sector is still expected to maintain a reasonable growth rate. Floods



**Figure 3.** Percentage damage by sector.

have submerged vast area of Pakistan's most precious and fertile cropland. Furthermore, it is blamed to have killed over 0.2 million herds of livestock and have swept away enormous quantity of grains. A serious apprehension stands in the form of crop growers who might not be able to meet the seasonal target for sowing new seeds in 2010 and this could bring a massive damage to foodstuff production in the coming year, and a possible long term food scarcity. Industrial sector was not unduly affected by the floods; it has also seen a significant slowdown due to input losses that the textile and food preparing sectors face. The slowdown in commodity producing sectors, disruption of economic activity and heavy damage to infrastructure resulted in some deceleration in services sectors despite the positive fallout of reconstruction activity.

Floods have also severely damaged the transport and communications infrastructure of the major part of the country with an estimation of well over 2000 miles of highway and around 3,500 miles of railway completely or partially damaged. On the cost estimation side, highway damages hovers around an approximate figure of over \$158,000,000, and railway damages to railways are estimated around \$131,000,000. Furthermore it could not be over ruled that any particularly large infrastructure losses are not possible. Moreover it has also been under consideration that an estimated 5,000 schools have been destroyed in the flood affected area (Figure 3).

### **Economic impacts of flood**

The rate of natural calamities has ringed the global-warming alarm. Unfortunately, what could be seen now is proof of changing global climate only if we do not want to see, like pigeon closing its eyes to avoid danger. Few of the climate models have signaled the intense monsoon

downpour in response to observations of climatic change pattern, even though some meteorologists have coined their expert opinion against relating the flooding as directly caused by changing climatic pattern and instead look for cyclical patterns spread over the past to show that severe weather observations have been recorded from time to time all the way through history. Keeping all of the discussion on one side, the recent flood has hurt the economy of Pakistan deeper and inflicted serious economic wounds. Around 68% of Pakistani's resides in rural settings are faced with inadequate access to suitable sustenance which has further been goaded by damages caused by floods. It is expected that more than 5 million jobs has gone or affected by the recent calamity. The accentuating point is that fruitful, productive and labor oriented programs are required to create more job opportunities to elevate millions of people out from the dungeons of poverty. As per the government estimates, although the calamity has destroyed wheat stocks of around 0.6 million tons, but thanks to a bountiful crop of over 23 million tons last year, something should still be on hand to the economy for export.

However, the economy is expected to exceed 13,000,000 bales of cotton crop, having an aim of 14,000,000 bales for the current financial year which is now set to look as an impossible goal to achieve, as the calamity has spoiled around 3,000,000 bales. Likewise, a 15% rice harvest is also estimated to have been lost. Keeping in mind all of these losses, the gross domestic productivity growth rate set at 4% before the floods has turned downwards although expectations are that gross domestic productivity may move upward in periods to come, however it will require years before it could arrive to the stage considered acceptable. As a consequence, the economy has slim chances to overcome the objectives of achieving budget shortfall cap of 5.1% of gross domestic productivity agreed upon with donor

agencies. Furthermore, the existing level of debts both internal and external is all but bound to move up. Damages to cotton harvest has hit the textile manufacturing sector as well, which constitutes the largest chunk of export sector of Pakistan; and since government is facing liquidation voices are rising to write off loans granted to farmers in the affected regions, a call that small farmers would find difficult to cope with.

Furthermore, the aggregate agricultural yield has suffered a serious dent as the flood has brought about damage to over 200,000 herds of livestock in addition to the loss of other harvests. Large industrial firms have also expected that the disaster may debilitate the growth which requires the production cuts to be implemented; therefore the populace would have to struggle to come to terms with the annihilation. Pakistan's economy is in a state of frailty as a candle in the wind and all quarters of the economy are experiencing decline in sales although a few of the investors have begun buying the undervalued stock with the expectation that market will move up again soon. Inflation has remained high right throughout the tenure of this government and to add the injury is the fact that under present circumstances, it is difficult to handle. During 2009 to 2010, headline inflation averaged above 11%, with expectations that it would decelerate this year. However, the inflation surged to a new height chiefly by post-flood price increase of perishable and non-perishable food items. If someone argue that this may be a temporary acceleration in prices resulting from flood damages to crops, the heavy government borrowing from the banking system and international donors to meets its burgeoning expenditure is likely to exacerbate the problem. To counter these inflationary trends, the State Bank of Pakistan had moved down to mitigate price pressures and raised the policy interest rate by 0.5% in July and by another 0.5% later in September 2010. It is worth mentioning here that subsequent to showing the dismal growth over a decade, government expects to move up in the current financial period ending by 30th June.

However, even if it could be assumed that Pakistan may achieve some recovery in GDP, it is inevitable that the economy could have a loss of approximately \$2 billion, in terms of gross domestic product. As a matter of fact, the government's fiscal position is likely to get weaker, as a large proportion of relief, rehabilitation and reconstruction cost burden has to fall on the government. Agriculture accounts for around twenty percent of Pakistan's GDP, and recent disaster has spoiled agriculture produce implanted over around 1,380,000 acres. The tragedy has strained the public funding in various ways. Prior to the catastrophe, the budgetary shortfall was estimated to get in touch with at 4.5% of GDP, which now has widened so much that the administration is striving to get political support in finding alternate source of finances in terms of reform, general sales tax and petroleum prices to bridge the gap.

Apparently executing donor agencies directions do not seem to be likely in terms of budgetary shortfall to GDP ratio in the current state of affairs, and elevated financial scarcity is expected to guide government to increase borrowing thereby worsening the economic emergency even more seriously.

Pakistan's credit ranking is unlikely to get any upward direction especially in the short run owing to the destruction and damages caused by the calamity and its financial implications. Pakistan's present rating which is merely a point above the rank indicating sovereign default of the country effectively incarcerate the possibility of the expected economic downturn. Balance of payments is also under pressure. Albeit the positive impact of EU granting an enhanced market access for a limited time, export performance is weak as the textile sector is impacted by the need to source the loss due to crop damage. Also, the cement sector has to work for domestic consumption instead of exporting. In contrast, reconstruction and rehabilitation will require a vital increase in imports particularly of food, medicines, fuels, and machinery which means foreign workers' remittances continue to play lone savior for household consumption.

### **Political impact of floods**

Natural calamities, like the recent floods in Pakistan, have been theorized to have brought about major future political chastisement majorly with growing acuity among the masses about the governance inefficacies. Much of the damage caused by the recent flood has damaged the regions under manipulation and influence of the religious fundamentalists, and Pakistan's government has been sustaining pressures of the Western world to continue onslaught on this region, as these areas have been said to provide safe heaven for al-Qaeda and other terrorist groups. Although with the support of the people, civil society and army, it could be argued that the situation has not adequately allowed insurgents to take a major political lead however it could still lead to future political unrest. The flooding effect could still trigger massive resentment against present regime; political resiliency also has to lock horns with multiple challenges in the shape of ongoing insurgencies, ever disturbing urban sectarian dissension, frightening suicide bombings in opposition to central institutions, economic weakening and regional political issues.

Although Pakistan army has dealt with the relief, rehabilitation and reconstruction in the flood affected areas efficiently however it was feared initially that the disaster would very easily sidetrack Pakistan's armed forces from skirmishing the insurgencies in the northern regions. The fallout is positive for the military as they have been able to re-establish their public image which has suffered seriously during 2007. They provided much needed facilitation in the reprieve attempt in a more

efficient and organized manner than any other group but at the same time not giving insurgents let off to recuperate. In contrast, religious fundamentalists also tried to win hearts and gain political mileage by engaging in respite efforts to make significant inroads especially when the government is perceived to be nonexistent or is inefficient based on corruption. Furthermore the floods have extricated many of the property markers which may create concerns of dispute and provide an opening to the Taliban to make inroads by settling these disputes swiftly due to governmental delays and corruption. The seriousness of the matter could be judged from the fact that the Taliban insurgent's have even ask the government to throw out Western aid as it would lead to subjugation, and argued that they could raise twenty million dollars to fill the support emptiness. Alternatively, the US and the western world can also have the chance to develop a soft image of themselves among the locals by helping flood victims, and which is why despite the threats; they are playing their part in relief and rehabilitation operations.

The UN and the WHO reviewed the security arrangements for their workers after finding three American relief workers been exterminated by the extremists in the Valley of Swat but continued to support. The American and the Westerners did get some local support for their humanitarian work only to lose it through drone attacks and people like Raymond Davis. The government must understand that humanitarian and compassionate needs not having efficient governance can provide an open and easy field for the extremists. Other social and economic issues are hampering the goodwill of the government and they are losing the support of their allies very swiftly. The slogans of revolt and change are growing stronger due to the inefficiencies of the government and the events happening around the Islamic world. Stagnant water coupled with homelessness are raising the risks of water related syndromes, and a cholera case has already been recorded whereas other health concerns like malaria, dengue and hepatitis are also there in the wake of the flooding. Furthermore, one significant aspect of the present crisis is its ability to damage and exaggerate the regional economic disparity, since the recent floods have mostly damaged regions which have been the least recipient of economic attention and therefore considered as economically disheartened regions. Damages to the valuables and resources mean losses to the income and business and might bring more unemployment. It must not be ignored that joblessness in addition to persistence rise in prices may append more to poorness in the expanse. If strategic steps are not brought about, the growing poorness could not be confined up into the disaster inflicted regions but will be transmitted eventually to the municipal hubs. Rising prices coupled with feeling of disappointment could bring dissipation in the society chiefly guided by the scarcity of foodstuffs, which with movement of individuals rummaging around for jobs, will

eventually disturb the whole economy.

## CONCLUSION

Despite being blessed with all kind of resources, the economy of Pakistan is being marred with issues like erosion in the purchasing power, mounting local and foreign debt, and dissuasion of productive private sector activity. The recent flood in Pakistan is amongst the worst natural catastrophe of the recent time, destroying and damaging millions of acres of land, crops, infrastructure and economic and social lives. Mother nature is not alone in threatening Pakistan through an unrelenting onslaught but has problems created of its own. Extraordinarily, monsoon downpour during the normal season that runs between July and September becomes predominantly severe in Pakistan. The Federally Administered Tribal Areas in the Khyber Pakhtunkhwa were flooded with 180% higher than typical rainfall aggregates during July, and the overflowing runs down along the River Indus to the length of the country.

The flood has hurt the economy of Pakistan deeper with serious economic wounds, as about 68% of Pakistan's populace lives in rural setups and has inadequate access to suitable sustenance and which has further been goaded by disasters aftershocks. The emphasizing point is that more fruitful and productive labor oriented job opportunities are required to be created to elevate millions of people out of living poor quality life. Furthermore, one significant aspect of the present crisis is the ability to damage and contribute to the territorial inequity, as the damage has occurred majorly in areas which have remained underprivileged and less developed. The recent flood would be a basic cause of unemployment due to the damages to the income and commercial resources and in addition to inflation, may supplement to the already existing poorness in the region. If strategic steps would not be suggested, the growing poorness could not be confined up to the disaster struck regions but will ultimately be transfused to the municipals hubs and will affect the entire region.

## REFERENCES

- Canton LG (2009). "Emergency Management: Concepts and Strategies for Effective Programs", John Wiley and Sons: Hoboken, NJ. pp. 221- 265.
- Cerullo MJ, Cerullo V (1998). "Key factors to strengthen the disaster contingency and recovery planning process", Information Strategy: Exec. J. pp. 37-43
- Chandra, Anita, Joie A (2009). "The Role of Nongovernmental Organizations in Long-Term Human Recovery after Disaster", Rand Occasional Paper.
- Daniels, Ronald J, Donald FK, Howard K (2006). eds., "Risk and Disaster: Lessons from Hurricane Katrina", University of Pennsylvania Press: Philadelphia. pp. 110 - 197.
- David AM, Christopher F, Chad WJ, Richard W (2002). "A Comparison of Disaster Paradigms: The Search for a Holistic Policy Guide", Public Administration Review, American Society for Public

- Administration. Vol. 62.
- Drabek T. E (2010). "The Human Side of Disaster", CRC Press: Boca Raton, FL. pp 138-201.
- Ebling RG (1996). "Establishing safe harbor: how to develop a successful disaster recovery program", Risk Manag. pp. 53-56.  
[http://www.archive.org/stream/./parliamentarypa209commgoog\\_djvu.txt](http://www.archive.org/stream/./parliamentarypa209commgoog_djvu.txt)  
<http://www.earthobservatory.nasa.gov/Features/LaNina>  
<http://www.ipripak.org/factfiles/ff126.pdf>  
<http://www.jang.com.pk/thenews/aug2010-weekly/nos-15-08.../pol1.htm>  
<http://www.judithcurry.com/2010/09/20/pakistan-on-my-mind>  
<http://www.ndma.gov.pk>  
<http://www.pepco.gov.pk/>  
<http://www.reliefweb.int/>  
<http://www.siteresources.worldbank.org>  
[http://www.siteresources.worldbank.org/.../Ch4\\_PakistanFloodsDNA\\_December2010.pdf](http://www.siteresources.worldbank.org/.../Ch4_PakistanFloodsDNA_December2010.pdf)  
<http://www.un.org/apps/news/story.asp?News>
- Hurwicz M (2000). "When disaster strikes", Network Magazine. pp. 44-50.
- Louise KC (1988). *Managing Disaster: Strategies and Policy Perspectives*, Duke University Press. pp. 255-312.
- Matthew DA (2006). "Policy Analysis for Natural Hazards: Some Cautionary Lessons from Environmental Policy Analysis", Duke University School of Law. *Duke Law J* Vol. 56.
- Mitome Y, Speer KD, Swift B (2001). "Embracing disaster with contingency planning", *Risk Manag.* pp. 18-27.
- Phillips BD (2009). "Disaster Recovery", CRC Press: Boca Raton, FL. pp. 21-167.
- Rutherford HP (1999). *Disasters and Democracy: The Politics of Extreme Natural Events*. Island Press. pp. 201-276.
- Saundra KS (1995). "Flirting with Disaster: Public Management in Crisis Situations", M E Sharpe Inc. pp. 97-138.
- William LW Jr. (2007). "Regionalizing Emergency Management: Counties as State and Local Government, Public Administration Review. *Am. Soc. Public Adm.* 54:253-258.